T-1 – (also known as DS-1) A classification of service. A T-1 circuit has a bit rate capability of 1.544 megabits per second, and is capable of carrying 24 single line telephone circuits.

TIIAP - Telecommunications and Information Infrastructure Assistance Program - A grant program from the U.S. Department of Commerce, National Telecommunications and Information Administration, established by Congress in FY 1994 to assist non-profit organizations and units of state and local government. These projects are often used to fund projects that contribute to the building of a national information infrastructure.

xDSL (- Digital Subscriber Line) - A new technology which can provide multi-megabit data services over copper subscriber loops.

ATTACHMENT 2

STATEWIDE MULTI-USE NETWORK (MNT)
Fact Sheet

Project Description: The Multi-Use Network project (MNT) is a public/private partnership to build a high-speed fiber-optic network for the State of Colorado. US West is the awarded partner selected to build the MNT with the State serving as anchor tenant. The State will aggregate Colorado State government agency telecommunication requirements from its current multiple networks into a single network to reduce administrative and maintenance costs to the State. As anchor tenant, the State's investment will help leverage the development of telecommunications infrastructure and expand delivery of advanced services to all geographic regions of the state. The MNT will be implemented in three phases beginning in June 2000 and completing in 2002.

Project Partners: US West and subcontractors (CenturyTel, Phillips County Telephone Company, Eastern Slope Telephone Company, Citizens Communications, and Cisco Systems) are the awarded private partners for the project and will build the high-speed network. The MNT infrastructure will be owned, managed, and monitored by US West. The State of Colorado is the anchor tenant partner and as such, uses the significant aggregated telecommunications requirements of state government agencies as the leverage investment for extension of telecommunication capabilities and advanced services into all geographic areas of the state. The State of Colorado MNT Project Team will provide oversight of the prime contractor during the network build-out phases.

Implementation Phases: The project will be conducted in three one-year phases in which 70 ANAPS or Aggregated Network Access Points will be implemented across the state. An ANAP is defined as a minimum of 20 megabits of access capability for State government network users in an area. This service will be delivered over the new fiber optic network utilizing ATM (Asynchronous Transfer Mode) technology. Forty-two ANAPS will be implemented in Phase I, year 2000; an additional fourteen ANAPS will be implemented in Phase II, year 2001; and the final fourteen ANAPS will be implemented in Phase III, year 2002. The counties below are listed alphabetically within each phase. The implementation schedule is currently in development and will be released as soon as possible.
Phase I ANAPS Year 2000 – Adams, Arapahoe, Baca, Bent, Boulder, Clear Creek, Crowley, Custer, Delta, Denver (3 sites), Douglas, Eagle, El Paso, Elbert, Fremont, Garfield (2 sites), Gilpin, Gunnison, Jefferson (2 sites), La Plata, Larimer, Logan, Mesa, Montezuma, Montrose, Morgan, Otero, Ouray, Phillips, Pitkin, Prowers, Pueblo, San Miguel, Sedgwick, Summit, Washington, Weld, and Yuma.
Phase II ANAPS Year 2001– Archuleta, Cheyenne, Conejos, Costilla, Dolores, Grand, Huerfano, Kit Carson, Las Animas, Lincoln, Moffat, Rio Blanco, Rio Grande, and Routt.
Phase III ANAPS Year 2002 – Alamosa, Broomfield, Chaffee (2 sites), Hinsdale, Jackson, Kiowa, Lake, Lincoln, Mineral, Park, Saguache, San Juan, and Teller.

Enabling Legislation: The MNT concept was developed in response to legislation passed by the General Assembly of the State of Colorado in 1996. The intent of SB 96-102 was to connect urban and rural communities across the state. From the start, the development of a public/private partnership was central to the concept of a MNT. The mandate for infrastructure development is aligned with local economic development based on the availability of advanced telecommunication services. SB 96-197 refers to the selection and operation of a Multiple-use Network. This is defined as a digital network capable of carrying integrated voice and video as well as text, graphics, and other electronic data between and among schools, public libraries, institutions of higher education, and state agencies. The bill mandated that the State investigate and select one or more multiple-use networks to accomplish this.

Benefits and Advantages: (1) State agencies, schools, libraries, and institutions of higher education will no longer need to purchase telecommunication services in a piecemeal fashion. An aggregated network approach streamlines government by avoiding additional expenditures for duplicative state networks and provides the base infrastructure for electronic transactions with government. (2)The MNT supports education both at the K-12 and Higher Education levels through establishing the infrastructure for interactive learning and distance learning. (3) The MNT supports telemedicine in rural communities. (4) The MNT promotes rural economic development by extending telecommunications infrastructure to all corners of the state by encouraging private investment with the state acting as the anchor tenant.

Contacts: The State of Colorado Department of Local Affairs (303) 866-2771 administers grant funds for community infrastructure aka "beanpole funds". The State of Colorado Department of Personnel MNT Project Office (303) 866-2444 manages the conversion of state government networks onto the MNT and provides project oversight. News and updates will be posted at http://www.state.co.us/mnt.

ATTACHMENT 3

From: Ken Swinehart [SMTP:kens@amigo.net]
Sent: Monday, July 26, 1999 9:35 PM
To: Borrego, Mike
Subject: Alamosa Meeting

Mike,

I wanted to clarify a statement you made at the Alamosa meeting. I think you said whomever gets the RFP bid for the MUN will be required to provide the same service for the same price throughout the State. In otherwords
The price in Alamosa will be the same even though it will cost more to provide than in Denver.
If this is what the State plans to do I don't see how it would withstand a legal challenge. The PUC has ruled against this type of subsidy and it would be contrary to the intent of the Telecom Act.

Please clarify if this is the State's position. If this is the case, this would be the worst case policy for rural Colorado. Thanks ahead of time foryour clarification on the issue. ks

G:\amigonet\email to borrega from swinehart

ATTACHMENT 4

From: Borrego, Mike [mailto:mike.borrego@state.co.us]
Sent: Tuesday, July 27, 1999 11:06 AM
To: 'kens@amigo.net'
Subject: RE: Alamosa Meeting

We will be asking for flat rate pricing. I don't agree that it will be bad for rural Colorado or is contrary to the telecomm act. If fact flat rate pricing already exists for certain types of advanced services like frame relay and ATM. The PUC rulings only deal with basic telephone service that are under FCC or PUC regulation. Advanced services like ATM are unregulated. Flat rate pricing could be the only way that the rural areas can afford advanced services.

Mike Borrego
Telecommunications Manager
Colorado Information Technology Services
2452 W 2nd Ave #19
Denver, CO 80219
(Voice) 303-866-3217
(Fax): 303-922-1811

g:\amigonet\borrego email

ATTACHMENT 5

State Of Colorado

Colorado Department of Personnel
General Support Services
Telecommunication Services
Colorado Information Technology Services

Request For Proposal

for

Multi-Use Network: Infrastructure Development, Statewide Telecommunication Service Aggregation, and Network Management

October 22, 1999

Table of Contents

Section 1 - INTRODUCTION

1.1 Introduction

Colorado Information Technology Services (CITS) as a Division of the Department of Personnel is issuing this RFP as a solicitation for proposals for the configuration, implementation, and ongoing management of an outsourced statewide Multi-Use Network. The purpose of this Request for Proposal (RFP) is to define minimum technical and functional requirements for the State of Colorado *Multi-Use Network* and to obtain adequate information for evaluation and award of infrastructure and service development proposals offered in response to this RFP.

The Multi-Use Network will consist of 70 points of service around the state called *Aggregated Network Access Points* or *ANAPs*. An ANAP is not necessarily a physical presence or installation, but rather will be defined as a minimum of 20 Mb of access capability for State network users in an area. High-speed network access, preferably over fiber, will be delivered to these locations by the provider and distributed to users over appropriate links. Asynchronous Transfer Mode (ATM) is the required transport method. Offerors must specify how their existing service structure and planned improvements will meet the telecommunications requirements of the Multi-Use Network. This RFP seeks a prime contractor / Offeror who will create a mutually beneficial public/private partnership with the State as "anchor tenant" for increased telecommunications performance and the extension of advanced technologies throughout Colorado.

Throughout this RFP document, the State of Colorado Multi-Use Network will be referred to with the abbreviation MNT, for **M**ulti-Use **N**etwork for **T**elecommunications.

The State will insist on a 36 month implementation schedule in which MNT service upgrades are completed in 30% of sites in year one (minimum of 21); 50% of sites in year two (an additional 35 sites for a total of 56); and 20% of sites in year three (the remaining 14 sites). Offerors should also describe how they intend to coordinate their MNT implementation efforts with the activities of the "Beanpole" project communities (HB 99-1102) and other grassroots technology investment initiatives. The State of Colorado encourages the use of licensed, qualified, local subcontractors for implementation of the MNT where possible.

The formal schedule for this RFP process can be found in Section II, Administrative Information.

Evaluation and award are expected to be completed by February 1, 2000 (tentative date for letter of intent to award), with contracting to be completed by February 14, 2000, and a start date target of February 15, 2000.

1.2 Organization of the RFP

Section II will detail the Administrative Information for the RFP process and provide a sample contract. Section III, Statement of Work, will provide Technical Specifications and General Requirements for three modules: 1) Infrastructure, 2) Project Management; 3) Network Management and Monitoring.

Section IV, Proposal format and evaluation criteria, provides a template for responses. Background material on current equipment, network requirements, and other pertinent information will be included in the Attachments.

1.3 Project Description

The concept of the State of Colorado MNT is to aggregate State telecommunication requirements onto a high-speed backbone capable of integrating voice, video, and data. The network does not call for investment in any new forms of dedicated and rigidly defined technology solely limited to State agency uses. Instead, this RFP seeks an Offeror who can leverage the State's investment into an enhanced public network to benefit all users of telecommunications technology in every community in Colorado.

Aggregation of service requirements for the MNT will deliver three immediate benefits:

1. Provide coherence of services and simplification of management, maintenance, and business operations.

2. Allow leveraging of State investment for strategic development of telecommunications capabilities and accelerated technology introduction for Colorado communities; and

3. Make possible an immediate reduction of administrative and maintenance costs and establishment of well-defined cost-avoidance strategies for future State telecommunications investment and growth.

1.4 History

The MNT concept developed in response to legislation passed by the General Assembly of the State of Colorado in 1996: Senate Bills 96-102 and 96-197. Senate Bill 96-102 (C.R.S. 24-37.5-203) charged the Commission on Information Management (IMC) with the responsibility to "... develop and implement requirements for the statewide information infrastructure..." The intent was to connect "... urban and rural communities across the state... " From the start, the concept of a "public/private partnership" was central to the concept of a MNT. The IMC charge in SB 96-102 included the following task:

To define and initiate a partnership between the private and public sectors for funding and building the statewide information infrastructure, with the understanding that the private sector will build the necessary portions of the statewide information infrastructure.

The mandate for infrastructure development is aligned with local economic development based on the availability of advanced telecommunication services. Senate Bill 96-197 (C.R.S. 23-11.5 102 through 104) refers to the selection and operation of a "Multiple-use Network." This was defined as "... a digital network capable of carrying integrated voice and video as well as text, graphics, and other electronic data between and among schools, public libraries, institutions of higher education, and state agencies." The mandate charged the Department of Higher Education, in consultation with the Department of Education and the IMC, to investigate and select one or more multiple-use networks to connect Colorado schools, public libraries, and institutions of higher education for the purposes of enhancing instruction and information access.

A review of the State's past telecommunication purchasing practices discovered several inherent limitations in the State's ability to optimize its delivery of networked services. Distributed funding models along with distributed decision making authority had fostered the development of inefficient approaches to providing relatively generic telecommunication services to state offices throughout Colorado. State agencies, schools, libraries, and institutions of higher education purchased telecommunications services in a piecemeal fashion. These institutionalized practices have slowed development of State networked technology and fragmented the state's ability to deliver services and affect infrastructure development throughout Colorado. It has also increased the potential for failure and delay of new information technology projects that must depend on the availability of advanced telecommunications services and increased bandwidth. These telecommunication purchasing practices also have not allowed the State to benefit from forming higher-level strategic partnerships with telecommunications vendors to provide direction and support for mutually beneficial upgrading of the State's local and backbone public telecommunications infrastructure.

In October of 1997, the Multi-use Network Taskforce (MNT) was established by the Department of Personnel / General Support Services. As a result of the work done by the taskforce, the IMC released the *Colorado Strategic Plan For Statewide Telecommunications Infrastructure* in February 1998. A copy of the plan and other related information may be obtained at the following web site http://www.state.co.us/gov_dir/gss/cits/comm/multinet/multinetcover.htm.

1.5 Related Legislation

A companion piece to the MNT Strategic Plan relates to *Community Incentive Funding* or *community based access grants*, a means to fund and facilitate the participation of community level stakeholder aggregation (that is, other than State agency offices) to extend MNT-recommended infrastructure upgrades to every Colorado community. A bill informally known as the "Beanpole Bill" (HB 99-1102) was passed in the 1999 legislative session to establish a grant program for local communities. Enabled with "Beanpole" funding, each community can aggregate its multiple sources of telecommunications demand from education, local government, library, health care, and other public or non-profit sectors. This community-level aggregated demand is intended to provide the "anchor tenant" to resolve "last mile" problems even in communities without significant State government telecommunications requirements. Local ANAPs (aggregations of non-State user requirements) will be formed within the self-defined community to aggregate telecommunications services. The concept is to achieve a critical mass of demand and facilitate extension of the capabilities of the MNT. First year funding defined in the "Beanpole" bill is $4.676 million, with additional funding dependent on demonstrated success of the program. A copy of HB 99-1102 along with other descriptive and contact information on the "Beanpole" project can be found in Attachment 5.1 of this RFP.

HB 99-1102 directs State Telecommunications Services to interconnect with these community-based aggregation efforts:

> **24-1-125**, Colorado Revised Statutes, to administer a community-based access program of incentive grants available to all communities in the state to aggregate the communications traffic of the public offices within the community. The General Assembly also hereby directs the executive director of the department of personnel to interconnect this community-based traffic with networks established by the state, to the extent that available resources permit.
>
> **24-30-903. Duties and Responsibilities**. (7) The executive director of the department of personnel shall carry out all duties and responsibilities set forth in this section in a manner that is consistent with the objective of maximizing access to digital networks of the state by all public offices of all levels, branches, and political subdivisions of the state within every community of the state. In particular, within available resources and as soon as feasible, the executive director shall provide connections proposed and approved by the department of local affairs, created in section 24-1-125, C.R.S., through the community-based access grant program established under section 23-11-104,5, C.R.S., and may act as a network provider between or among all public offices as defined in said section.

The MNT, by this requirement, is an inclusive concept, and Offerors should keep in mind that the State wishes to establish a system which will leverage telecommunications investment from the broadest possible set of approved stakeholders. Therefore, the State

of Colorado is soliciting proposals from service providers who can build, operate, and manage a statewide network to consolidate the needs of Colorado State agencies as well as the telecommunications needs of higher education sites, local government, and other public entities, such as K-12 schools, healthcare facilities, and libraries, as called for in HB 99-1102. Responses to this RFP should address this issue of inclusiveness and aggregation of investments in addition to what the State itself will be able to provide under the auspices of this RFP. In effect, the coordinated inclusion of these other investments will return a benefit to the State in improved infrastructure and capability, particularly in Colorado's smaller and less populous communities.

1.6 Goals

The MNT concept has the following set of goals:

The primary goal of this RFP is to identify an Offeror who can provide the best proposal for improvements of cost control and efficiency for both client and vendor in the provision of telecommunications services and infrastructure development required by the State of Colorado. This statement is expanded and detailed in a set of goals (revised from their original publication in 1998) which first appeared in the State's MNT Strategic Plan:

1. To aggregate network management and telecommunications purchasing to maximize the value of the State's telecommunications investment in measures of cost efficiency and technical performance.

2. To provide a minimum of one point of service for high speed access (ANAP) in every county in the state (plus several other State-served sites, a combined minimum of 70). These will provide bandwidth ranging from 20 Mbps to 2.4 Gbps (OC-48) for State services, via Asynchronous Transfer Mode (ATM) connections capable of carrying voice, video, and data on a statewide network.

3. To establish a public/private strategic partnership with an Offeror to coordinate the use of ongoing state telecommunications investment for the build-out of advanced telecommunication capabilities in all Colorado communities.

4. To create a telecommunications service system in which the physical network will not be state owned. Instead, the State network will consist of a network of purchased services with defined performance capabilities. The only equipment that will be owned by the State are designated ATM edge switches and other customer premise equipment (CPE).

5. To align and aggregate departmental purchasing of telecommunications services for efficiency and value of State investment (i.e., to

receive the highest bandwidth and most advanced technology access for the dollar), coordinated management, and simplification of the vendor business relationship.

6. To leverage departmental and State aggregate telecommunications spending to assist vendor provision of public and switched services in Colorado communities and introduction of new telecommunications technologies throughout the State.

7. To provide a secure, reliable, scaleable telecommunications environment for the delivery of state services.

The MNT concept is based on a consolidation of State telecommunication services, WAN resources, existing State-owned equipment, and network management resources to generate cost savings, increased efficiency, and improved performance. The aggregation and centralized monitoring of State services should allow for the integration of all forms of telecommunications traffic into a more cohesive and flexible network. The resulting service infrastructure should provide not only higher performance, but also better availability, improved network management capability, more rapid response to new service requirements, and better potential for future cost avoidance. The MNT concept will also make possible a more streamlined business process.

The State Legislature, in its 1999 session, approved a State Backbone Budget Decision Item for $4,050,000 as the first year funding of a total $13.5 million in Capital Construction over the next 3 fiscal years and $7.35 million in Additional Spending Authority for the MNT. This funding approval allows the State to issue this RFP to select a prime contractor to develop and implement the MNT.

The completed MNT will be an outsourced, monitored and managed statewide network infrastructure that can accommodate voice, data and video communications as well as shared Internet access.

1.7 Current Status of State Networks

The State of Colorado is in need of a new, flexible, high-speed backbone to accommodate the many new applications and services being developed and deployed for its citizens. Currently the State employs several architectures and legacy networks to handle its data, voice, and video needs. Many new departmental networks have also been under development to accommodate required upgrades in services. This section summarizes those old and new networks for your better understanding of current and upcoming requirements

There are 19 State departments in Colorado, which can be classified into four categories depending on how they operate their telecommunications networks. The first group is general State government, the agencies responsible for the general services of the state, which includes Labor and Employment, Human Services, Public Safety, Transportation,

and others. The second category is Higher Education, which includes the four-year colleges and university system in Colorado. The third is the community college system run by the Colorado Community College and Occupational Education System (CCCOES). And the last category is the Judicial Branch and others. Each of these groups has been somewhat autonomous in the planning, management, and operation of their telecommunication projects and networks.

1.7.1 General State Government – The Telecommunications Services Group under Colorado Information Technology Services (CITS) in the Department of Personnel/General Support Services is responsible for assisting general State government agencies to design and complete their network and telecommunications projects. Telecommunications Services operates the State Digital Data Network (DDN), the Colorado Information Network backbone (CIN), the CITS Data Center Systems Network Architecture (SNA) network, ATM network, and the Cooperative Interactive Video in Colorado State Government (CIVICS) video network. The implementation, oversight, and operations of the MNT will also be a responsibility of Telecommunications Service Group.

1.7.2 Higher Education – Higher Education uses the Internet for most of its intercampus electronic mail and traffic. Higher Education (CU Denver) also provides internet services to the CCCOES community college system. It is also a user of the CITS CIVICS network for videoconferencing and distance learning. The University of Colorado and Colorado State University are charter members of Internet II Project, with the University of Colorado at Denver slated to serve as a "Gigapoint" for Internet II services. The Internet II Project is a collaborative effort among a number of universities, federal R& D agencies, and private sector firms to develop a next generation Internet for research and education, including enhanced network services as well as the multimedia applications which will be enabled by those services. Higher Education sites include the University of Colorado, with campus locations in Boulder, Denver, and Colorado Springs; Colorado State University in Fort Collins with extension services throughout the state; the University of Northern Colorado in Greeley; Fort Lewis College in Durango; Western State College in Gunnison; Adams State College in Alamosa; Mesa College in Grand Junction; and the University of Southern Colorado in Pueblo.

1.7.3 Community College System – The Community College network receives Internet service through a connection at CU Denver, and it uses the CITS CIVICS network for distance learning and videoconferencing. It uses the DDN and carrier circuits to connect its various sites. There are community colleges in Sterling, Trinidad, Fort Morgan, the Denver metro area, Pueblo, Lamar, Rangely, and La Junta. A number of these Colleges operate multiple campuses.

1.7.4 Judicial Branch and Others – The Judicial Branch network was developed at the departmental level and its staff does network design, operation, and purchasing separately from any other group. K-12 and the Library Network are also included in this category. The K-12 education network is largely composed of schools connecting to the Internet through a variety of internet service providers. Some are connected through grant

projects at higher education sites and the community college system. The Colorado Department of Education helps facilitate Internet connections for schools (it distributes $4+ million in Federal educational technology support funding annually) and may serve as a technical resource to the school districts. The Colorado State Library, also a division of the Colorado Department of Education, operates the Access Colorado Library and Information Network (ACLIN), providing online access to library resources for all State residents (free dial-up access is a statutory requirement of ACLIN) and distributes up to $2 million in Federal and private grant funding for library technology development in the state annually. Both libraries and schools have recently benefited from the introduction of "E-rate" telecommunications subsidies which provide up to 90% discounts for their Internet and telephony expenses. Information on the recent status of Library and K-12 Schools telecommunications infrastructure and usage can be found in Attachment 5.8.

1.7.5 Backbone Network Services – Most of the State's networks are carried over telecommunications lines leased from private telecommunication suppliers. Leased lines for State networks range from 2400 bps analog circuits to 155 Mbps ATM service. The State has also operated a statewide microwave system primarily to support public safety radio applications for a number of years. In addition to the Colorado State Patrol and local law enforcement, this system supports radio communications within the Department of Transportation (snowplows, highway equipment, etc.); Department of Natural Resources, including the Parks and Wildlife divisions; Department of Corrections for communications within and between prisons; and Higher Education institutions primarily for security and maintenance applications. The microwave network also serves as an alternate or redundant path for statewide networks such as the DDN. The microwave system has links to the systems in the states of Wyoming and New Mexico with a link to Utah recently having been implemented.

1.7.6 Voice Communications – The State currently supports approximately 38,000 telephone numbers located throughout the state excluding Higher Education and their student populations. Voice service management also includes the State long distance services contract, billing an aggregate of services of approximately $3.5 million annually.

1.7.7 Analog Radio – Although the State microwave network is digital, normal radio communications are still analog. The State system supports approximately 9900 radios and related dispatch centers. State users account for almost 8100 radios with the highest concentrations in Transportation (almost 2700), Natural Resources (over 1500), and Corrections (over 1600). Another 1800 radios are located in city and county governments primarily in local law enforcement and fire protection. Other State of Colorado departments using radio services include Agriculture, General Support Services, Judicial, Education, Public Health & Environment, Higher Education, Human Services, Labor & Employment, Law, Local Affairs, and Revenue. The Colorado State Patrol is transitioning from 17 dispatch centers down to five strategically located centers throughout the state. The State recently completed an RFP process for Digital Trunked Radio Services.

1.7.8 Digital Data Network (DDN) – The Digital Data Network (DDN) was created in 1986 to combine and better facilitate the transmission of data traffic within the state. The DDN consists primarily of leased digital lines with some reliance on the digital microwave for alternate paths or redundancy. The network relies on Time Division Multiplexers from General DataComm (GDC), and consists of nearly 50 nodes and around 350 circuits. DDN carries primarily low speed SNA network (9600 Bps) data and CIVICS video network traffic. (Please see Attachment 5.2 for network diagram.) It is one intent of this RFP to provide a high-speed network backbone that will allow a migration path to upgrade existing circuits on the DDN to the new and advanced services of the MNT.

1.7.9 SNA Network – The SNA network is so named because it uses the Systems Network Architecture (SNA) protocol. It is the network architecture used to interconnect IBM type mainframes such as the Amdahl Millenium 775 at the CITS Data Center and generally supports the widely used 3270 terminals still common to many departments. SNA is also used to connect the State mainframe to other mainframes for intercommunication.

The use and expansion of the SNA network has been discouraged. However, the State Data Center still has over 8400 devices identified as SNA. Ultimately, the use of this protocol, at least on the backbone portion of the State network, needs to be phased out in favor of the State standard, TCP/IP protocol. There is an SNA Project currently being implemented to do just this. It is anticipated that the majority of analog SNA lines will be converted to Frame Relay and encapsulated or converted to TCP/IP by June of 2000.

1.7.10 CIVICS Network (Video Conferencing) – The Cooperative Interactive Video In Colorado State Government (CIVICS) network provides the delivery of interactive video conferences and classes to 129 sites located around the state. In the last two years, CIVICS has grown rapidly. Currently, most of this activity runs on the DDN. The CIVICS network offers two-way interactive video using at least 384 Kbps of bandwidth. Due to the time division multiplexer technology used in the DDN, 384 Kbps of bandwidth must be permanently dedicated whether or not a videoconference is taking place.

There are increasing capacity issues as demand grows for this service. The highest usage is for course delivery between colleges, universities, and community colleges. Another use for video by the Department of Corrections is teleconferencing, which will be used to train staff and inmates, as well as provide services for video arraignment, parole board hearings, and staff meetings. The State is currently unable to meet the increasing demands in this area due to the limitations of the existing, legacy, DDN network.

1.7.11 Colorado Information Network (CIN) / Open Colorado Information Network (OCIN) - These networks are primarily based on Frame Relay Technology. The CIN has

network connections to most departments and serves as transport to the CITS Data Center mainframe and the Internet. Through the CIN, departments can interconnect and communicate with one another. The CIN also connects the State network to the global Internet. The CIN link to the Internet was recently upgraded from 1.544 Mbps to an ATM line at 20Mbps, improving performance dramatically.

There are various structural components of the CIN network in addition to frame relay circuits. There is a high-speed fiber optic loop (using FDDI - Fiber Data Distributed Interface) connecting the buildings in the Capitol Complex area. There are currently more than 220 routing points on this network using primarily Cisco routers. The CIN has more than 6000 countable devices attached to the network. The CIN network is currently monitored via Open View network software from Hewlett-Packard using SNMP (Simple Network Management Protocol). The State web server (Colorado Homepage) uses the CIN to connect to the Internet. The web server is on the "open" (i.e., public) CIN (OCIN), which is accessible from the Internet without restriction. The major portion of CIN is behind a screening router providing a barrier to incoming Internet traffic.

1.7.12 Asynchronous Transfer Mode (ATM) -In 1996, the State was funded for development of an ATM network to provide dramatically improved capabilities and replace the current Digital Data Network (DDN). The ATM network was initially designed to be owned and operated by the State and to run over privately leased lines. However, plans for the ATM network changed based on the 1998 Strategic Planning initiative of the Information Management Commission (IMC). Abandoning the private network concept, the ATM project took on a new focus of public/private partnership in preparation for the new Multi-Use Network (MNT) backbone.

The State has currently installed General DataComm (GDC) ATM switches at four locations, operating on a combination of a private SONET ring and public switched architecture (See Attachment 5.3). This has enabled limited aggregation of data, voice, and video, along with integration to Frame Relay sites throughout the state. A 155.5 Mbps OC-3c line was leased for seamless Inter-LATA crossing in an effort to extend the limited "cloud" across the state. A concerted effort has been made to capture the newly developing departmental networks for incorporation into the MNT. This network has been implemented to enable a seamless rollover into the new Multi-Use Network backbone specified in this RFP for which expanded ATM and other advanced services are required to every county in the state.

1.8 New Initiatives

1.8.1 Department of Human Services (CDHS) - Efforts are currently underway to extend the Colorado Department of Human Services' existing 46 Frame Relay sites into the ATM "cloud" for connectivity to aggregation points at 3520 W. Oxford Street (Fort Logan), 1525 Sherman, and 690 Kipling.

1.8.2 Department of Human Services - Colorado Youth and Families (CYF) - The CYF program, under CDHS, has begun ATM/Frame Relay implementation into the "'cloud" from 76 sites around the state. Aggregation points are located at 690 Kipling and 1525 Sherman.

1.8.3 Department of Human Services- Colorado Benefit Management System (CBMS) - Efforts are currently underway for the implementation of the CBMS Frame Relay to be integrated into and aggregated through the ATM "cloud." The CBMS requires services at the same 76 sites as the CYF (above), plus 23 additional sites.

1.8.4 Department of Public Safety- Colorado State Patrol (CSP) - Colorado State Patrol has just recently extended Frame Relay T-1 service to their five computer-aided dispatch (CAD) locations throughout the state with integration and aggregation through ATM to 690 Kipling and 4201 E. Arkansas.

1.8.5 Department of Public Safety - Colorado Bureau of Investigation (CBI) - Efforts are currently underway by CBI to implement a new statewide network to over 300 locations in Colorado with Frame Relay/ATM integration. Aggregation points will be at 690 Kipling and 4201 E. Arkansas.

1.8.6 Colorado Community Colleges and Occupational Education Services (CCCOES) - The Community College fiber network in the southeast corner of the state is currently being extended on high-speed ATM access from our location at 902 Erie, Pueblo, to the University of Colorado at Denver.

1.8.7 Judicial - Efforts are currently underway to extend ATM service to Judicial's site at 1300 Pennsylvania. Frame Relay/ATM integration and aggregation will point there as well as to 690 Kipling.

1.8.8 Department of Revenue - The Department of Revenue currently subscribes to OC-3 SONET/ATM service at 1881 Pierce for voice consolidation, ATM/Frame Relay integration, and ATM access to the CIN at 690 Kipling, with high-speed access to their location at 1313 Sherman.

1.8.10 CIN / OCIN - State access to the CIN has already been extended through the State-owned ATM switches from 690 Kipling to 1525 Sherman and 4201 E. Arkansas. ATM access to SuperNet (now Qwest) is provided through the "cloud" and southern LATA integration has been extended through the State site at 701 Court, Pueblo. OCIN is provided at 690 Kipling to 1525 Sherman through the State ATM switches and

SONET ring. OCIN InterLATA integration is currently underway from 902 Erie, Pueblo, to 690 Kipling, Lakewood.